



AIR RESOURCES LABORATORY

SEMINAR

A PROCEDURE TO USE SATELLITE MEASUREMENTS TO DETERMINE DIFFERENCES BETWEEN RADIOSONDE TYPES

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Radiosondes measure the temperature of a probe whose temperature is determined by the exchange of energy with both the surrounding air and the radiation environment. These effects vary with the type of coating, the air density, and the incoming radiation. In the past, differences due to these effects have been obtained by campaigns to launch two or more different radiosonde types under similar conditions at one site. This could be a good approach if the difference did not depend on the atmospheric conditions. Because it does, it takes a large number of observations to characterize the difference as a function of the atmosphere. Satellites provide a means of using the operational radiosondes to create pairs of radiosondes that can then be used to characterize the systematic differences under a wide range of atmospheric conditions. Corrections have been calculated to adjust the VIZ type B sonde, the Vaisala Rs80, and the RAO AVK-MRZ radiosondes to the Vaisala DigiCora radiosonde. The adjusted accuracies are about 1.0 K. The method has been tested by using pairs of the DigiCora radiosonde. This gives an upper bound of about 0.6 K to the precision under operational conditions. Results based on the corrections will be presented and discussed.

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